

A NFC-Based Intelligent Diabetes Management System
Winners, Philips Young Innovators Challenge 05/06
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A team, comprising of Seah Yew Keng and Tan Ting Feng, claimed the first place in the Philips Young Innovators Challenge 2005/2006 and walked away with a cash prize of S\$10,000. Their winning entry is a Near Field Communication-based intelligent diabetes management system.



Project Synopsis :

With a graying population, the number of people in the Asia-Pacific region succumbing to chronic illnesses such as diabetes, hypertension and high cholesterol is on the rise. Diabetes is often termed the “silent killer” since it is often the primary cause of other complications such as kidney failure, liver failure and stroke. It is also the leading cause of amputations and blindness in Singapore. Unlike most chronic illnesses, a diabetic person can still live healthily and carry on with his normal activities if steps are taken to manage this illness. Managing these information, however, introduces a lot of inconveniences to a patient and a growing number of diabetics are not managing their illness properly. It is, therefore, timely to employ technology to manage chronic diseases. In this project, an intelligent diabetes management system based on Near Field Communication (NFC) is developed.

NFC is a wireless communication protocol that is triggered by proximity. It allows data to be automatically transferred by “touching” two devices together. This mode of establishing communication is intuitive and inherently familiar to people, making it easier for the less computer literate elderly patients to use. By making use of NFC to simplify data handling, the proposed diabetes management system provides convenience to diabetic patients, thereby making it easier to manage their health conditions.

Figure 1 shows the main components of the intelligent diabetes management system. The Writer software (I) is essentially used by the doctor for setting safety health data limits to be monitored by the patient and uploaded via NFC to the diabetic management software (II) installed on the patient’s mobile device (PDA). The diabetic management software assists the patient in managing diabetes by using NFC to read and store information on RFID-labeled food packaging, medicine labels, and other NFC-interfaced medical equipment such as a NFC-enabled pedometer and glucose-meter. Functionalities such as medicine reminder and advice are provided based on the information read in via NFC. NFC can also

be used to transfer information read in for the day to a data management software (III) that resides in a personal computer. This software is responsible for storing and management of daily records which provides feedback to the doctor for revising the diabetic management plan of the patient.

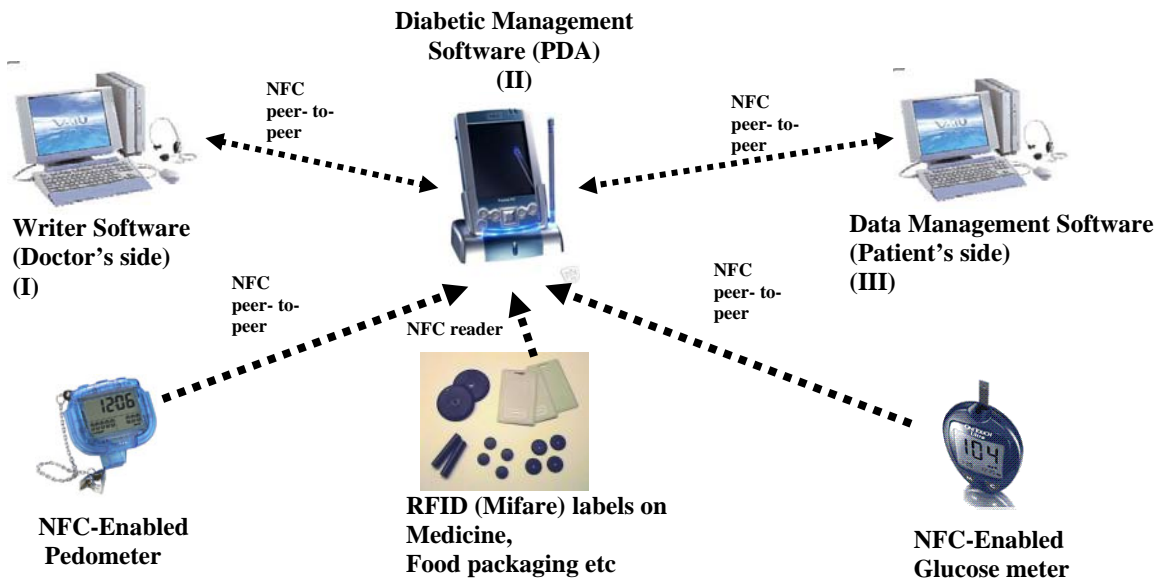


Figure 1 : System Framework of the Intelligent Diabetic Management System